

**SOUTHWEST FISHERIES SCIENCE CENTER**  
**FIRST QUARTER REPORT-FY 2003**  
**For the Period October 1 - December 31, 2002**

**Submitted By:** John Hunter, Director, Fisheries Resources Division.

**Title of Accomplishment or Milestone:** Stock assessment for Pacific sardine.

**Current Status of Accomplishment or Milestone:** The stock assessment has been completed and has been reviewed by the PPMC CPS Management Team, the CPS Advisory Subpanel, and the Council's Scientific and Statistical Committee. The Council adopted a harvest guideline of 110,908 mt for the 2003 fishing season based on the results of the assessment.

**Background:** The assessment results are applicable to the sardine population off the North America Pacific coast from Baja California, Mexico to British Columbia, Canada. Research surveys (fishery-independent) have been conducted on an annual basis in the spawning areas off central and southern California. For most of the contemporary time series (1983-98), significant fishing for sardine occurred only off northern Mexico and California. As the sardine population rebuilt and expanded its range through the mid-1990's, sardine became more available seasonally off Oregon, Washington, and British Columbia. Subsequently, fisheries in these more northerly areas expanded with significant landings beginning in 2000. Research survey data (fishery-independent) are used to index the size of the sardine spawning biomass; and when coupled in a modeling framework with fishery-dependent data and structural information on sardine biology and migration, provide the stock size estimates and demographics needed by the PPMC to establish harvest guidelines for the USA fisheries. Currently, the USA and Canadian fisheries are regulated using quota (harvest guideline) management schemes established by the USA and Canada, respectively. The Mexican fishery is essentially unregulated. As has been the case in recent years, landings from the U.S. Pacific sardine fishery (California, Oregon, and Washington) are below the PPMC harvest guideline recommended for 2002.

**Purpose of Activity:** The PFMC's FMP for Pacific Coast Coastal Pelagic Species requires an annual stock assessment for Pacific sardine for the purposes of (i) assessing the biological condition of the stock and (ii) establishing harvest guidelines for the Pacific sardine fishery.

**Description of Accomplishment and Significant Results:** Estimated stock biomass (age 1+ fish on July 1, 2002) from the assessment conducted this year indicated the sardine population has remained at a relatively high abundance level, with a bias-corrected estimate of nearly one million mt. The population had been increasing at a rate of approximately 30 percent per year since the mid 1980s, but the rate of increase now appears to be more moderate. Estimated recruitment (age-0 fish on July 1, 2002), albeit more variable than stock biomass statistics, has declined in the last year but still remains at a relatively high level. The latest sardine stock assessment document is available at:

<http://swfsc.nmfs.noaa.gov/frd/Coastal%20Pelagics/Sardine/sardine1.htm>

**Significance of Accomplishment** (e.g., to the Center, to Management, and to the NMFS Strategic Plan Goals): NMFS and the SWFSC, in particular, has the mandate to provide scientific support for the PFMC in implementing its Fishery Management Plan for Pacific Coast Coastal Pelagic Species. This research effort -- accomplished in cooperation with the California Department of Fish & Game (CDFG) -- represents an important part of that mandate, and fosters vital scientific collaboration with CDFG scientists.

**Problems:** The model used for sardine stock assessment needs significant revision and enhancement to better reflect the changing dynamics and spatial structure of the stock. The PFMC Scientific and Statistical Committee is organizing a STAR Panel review for the Pacific sardine and mackerel assessments to be held in September 2003. Considerably more resources will need to be dedicated to CPS assessments (particularly sardine) in the coming year.

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